3rd Year Track DDEFi
Data, Decisions in Economics and Finance
(Données, Décisions Economiques et Financières in French)



Graduate Program outlines

The graduate program is designed to offer a wide range of courses into several fields : Mathematical Finance, Insurance or Quantitative Management and Data Science related to the previours fields.

Technology and economy are more and more complex. Mathematics and their applications are the heart of the decision tool needed in this world: they help to model, evaluate and control risks associated to industrial processes, economical phenomena or financial products. The knowledge of mathematical tools associated to a deep understanding of theses phenomena is largely appreciated in many areas.

Depending on the status of the student, the student can also attend a Master program in parallel with the track DDEFi :

- Master Aix-Marseille School of Economics (AMSE), track Finance Quantitative et Assurance (information contact at Centrale Marseille: Renaud Bourlès): only 2nd year course units.
- Master in Applied Mathematics and Statistics, track Data Science (information contact at Centrale Marseille: Christophe Pouet): only 2nd year course units.

Goals

Prepare students to become highly skilled engineers able to recognize and model complex problems in order to develop adequate strategical decisions

The main topics are finance, insurance, probability, statistics, scientific computing, optimization, mathematical modelling for risks in economy and finance, actuarial science, marketing, quantitative management.

Important information for exchange students

EXCHANGE STUDENTS: This section contains VERY IMPORTANT information for preparing your mobility.

Number of accepted students

The 3rd Year scientific tracks such as DDEFi have a limited number of accepted students. Priority is given to Centrale Marseille engineering degree students and Aix-Marseille University students. Nevertheless, the track DDEFi has always been able to accept exchange students (usually 3 or 4) and we will be very pleased to have you as an exchange student for one or two semesters depending on the requirements at your home university.

Academic calendar

A new organization will be in place from academic year 2022-2023. Please carefully check the latest information here and check with your local coordinator if it fits your mobility window.

All course units offered in the track DDEFi are offered from September to Mid-April. Each course unit belong to one of the following semesters. * Semester 9 (Fall-Winter): **Fall-Winter semester extends from early September to Mid-February**. * Semester 10 (Spring): **Spring semester extends from Mid-February to Mid-April**.

Therefore if you can stay at Centrale Marseille from early September to Mid-April, you will bee able to validate 29 ECTS credits (including a 5 ECTS team project) with course units offered in the track DDEFi. Do not hesitate to contact Centrale Marseille International Mobility Office or Prof. Christophe Pouet (cpouet[AT]centrale-marseille.fr with [AT] replaced by @) for the track DDEFi if you need some advice.

Language of instruction

If you intend to come for one year at Ecole centrale de Marseille, please note that depending on the number of credits taken, your proficiency in French must be at least at intermediate level (level B1 or higher recommended).

Please note that the instruction language is English for many course units in the track DDEFi.

Number of credits for a full exchange year

If you intend to come for one year, the Spring semester will certainly necessarily include a research or work placement (equivalent to a Master Thesis, 15 ECTS). Course units only worth 15 ECTS are offered at the beginning of the Spring semester to students who attend 3rd year courses.

Please check the information below about credits.

Availability of courses

- Courses may be cancelled with very short notice (e.g. if not enough students sign up for the course), although that should happen very seldom in the 3rd year track DDEFi.
- Courses may be overbooked (too many students sign up) preventing you from taking the

course. Priority is given to degree-seeking students.

Structure of the program

The track DDEFi allows a student to validate 24 ECTS for courses and 5 ECTS for a team project. The number of ECTS credits thanks to DDEFi course units depends on your mobility period. In fact, the track DDEFi allows to validate

- S9 (Fall-Winter): 16 ECTS credits thanks to course units,
- S10 (Spring): 13 ECTS credits thanks to course units (including the 5 ECTS team project starting mid-September),

Please read CAREFULLY what is written below the table and do not hesitate to contact Centrale Marseille International Mobility Office or Prof. Christophe Pouet (cpouet[AT]centrale-marseille.fr with [AT] replaced by @) for the track DDEFi if you need some advice.

Academic Team

Instructors are from Centrale Marseille, from other HEIs (such as Aix-Marseile Université or Kedge BS) or highly skilled practitionners from renowned companies. Full list of instructors available in French here

List of course units

Warning! This is the new programme for academic year 2022-2023. There are minor differences in course contents but the main difference with previours academic years is that taught course units are now worth 8 ECTS credits instead of 3 ECTS credits. This should ease the construction of your learning agreement.

The DDEFi track offers 24 ECTS credits for the taught courses and 5 ECTS credits for the DDEFi project (team project with a private company).

The structure of the program DDEFi is the following

Team Project (from mid-September to mid-April)						
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**
DDEFi project	Projet DDEFi		5	S10 (Spring)	100h	R. Bourlès

Period 1 (from mid-September to mid-November): Common core						
English Name	**French name**	**Code**	**ECTS**	**Contact hours**	**Coordinator**	
Models and Decisions	Modèles et décisions		8	S9 (Fall-Winter)	100h	R. Bourlès

Period 2 (from mid-November to mid-February): Major (1 course unit to be chosen)						
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**
Finance	Finance		8			

S9 (Fall-Winter) | 100h | | R. Bourlès |

Data and decisions	Données et décisions		8	S9 (Fall-Winter)	100h		
Period 3 (from mid-February to mid-April) : Specialised course unit (1 course unit to be chosen)							
English Name	**French name**	**Code**	**ECTS**	**Semester**	**Contact hours**	**Coordinator**	
Mathematical finance	Mathématiques financières		8	S10 (Spring)	100h		
Corporate finance	Finance d'entreprise		8	S10 (Spring)	100h		
Actuarial science	Actuariat		8	S10 (Spring)	100h		
Data analysis	Analyse et données		8	S10 (Spring)	100h		

If as an exchange student, you need more ECTS credits for your exchange semester than you can take in the track DDEFi, then you have to choose course units in the following offer (beware that most courses are in French)

- 3rd Year Common Core in Management: 3 ECTS during S9 (Fall-Winter), 1 ECTS during S10 (Spring)
- International cultures and foreign languages: 2 ECTS during S9 (Fall-Winter), 1 ECTS during S10 (Spring)

For example you can attend a course called French as a Foreign Language (the introduction week for international students has also an intensive French language course that can give ECTS credits, check with the International Mobility Office).

- Professional track: 9 ECTS during S9 (Fall-Winter)

The professional tracks that best suit the track DDEFi are Audit & Counselling (AUC), Entrepreneurship (ENT), Research & Development (R&D), Organisational Management (MO) et Production-Logistics (PRL).

Alternative solution : you can also attend courses in a Master programme or see if some joint courses between DDEFi track and Master programmes can be recognized as Master courses in your transcript of academic records.

Please contact the DDEFi track deputy coordinator Prof. Christophe Pouet (cpouet[AT]centrale-marseille.fr with [AT] replaced by @) for more information.

Career prospects and postgraduate studies

DDEFi students are usually hired as interns or employees in the following areas:

- Bank, Finance: BP2S, BNP Paribas, Amundi,...
- Insurance, Actuarial Science: Axa, Crédit Agricole Assurances,...
- Audit, Counselling, Services: Mazars, E&Y, Solucom,...
- Information Technology, Electronics, Telecommunication: Orange, CGI,...
- Luxury Industry: Chanel, Guerlain, L'Oréal,...
- Transportation: Renault,...

For a more complete list of companies, please check the webpage (in French) about DDEFi internship.

After their graduation at Ecole centrale de Marseille, some students have attended one of the

following graduate/postgraduate programmes:

- Mastères spécialisés HEC, ESSEC, ESCP, EM Lyon
- Mastères spécialisés ENSAE (Actuariat, Finance de marché, Data Science)
- Mastère spécialisé IFP School
- Mastère spécialisé Mines de Paris
- Master Mathématiques et applications Université Paris Dauphine (Paris Sciences et Lettres) : MASEF, ISF, Actuariat
- Master MFD Ecole Nationale des Ponts et Chaussées et Université Gustave Eiffel
- Mastère spécialisé Ecole Nationale des Ponts et Chaussées M.S. Infrastructure Project Finance
- Master M2MO Université Paris Diderot
- Master London School of Economics
- MBA Collège des Ingénieurs

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